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ACUTE LETHALITY DATA FOR ONTARIO'S INDUSTRIAL MINERALS SECTOR EFFLUENTS COVERING THE PERIOD FROM MAY 1990 TO MAY 1991

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ACUTE LETHALITY DATA FOR ONTARIO'S INDUSTRIAL MINERALS SECTOR EFFLUENTS COVERING THE PERIOD FROM MAY 1990 TO MAY 1991

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SUMMARY

Under the MISA program, the Industrial Minerals Sector was required to conduct laboratory toxicity tests to monitor its wastewater discharges for acute lethality to rainbow trout and to *Daphnia magna*. This requirement was based on the Ontario Environmental Protection Act, which allows the Ministry to write regulations requesting persons responsible for sources of contaminants to monitor, record and report to the Ministry. The requirements for toxicity testing are in the General Effluent Monitoring Regulation (Ontario Regulation 695/88 as amended to Ontario Regulation 533/89) and in the Effluent Monitoring Regulation For The Industrial Minerals Sector (Ontario Regulation 91/90). Some additional information is in, "The Development Document For The Effluent Monitoring Regulation For The Industrial Minerals Sector (Env. Ont. 1990). The monitoring data will be used, in part, to develop effluent limits for acute toxicity. This report is a compilation of the toxicity data for samples collected for the MISA monitoring year from May 1990 to May 1991 for the salt mines and for August, 1990 to August 1991 for the rest of the sector. It also includes data from audit samples tested at the Ministry's laboratory in Rexdale.

The regulatory toxicity tests were conducted by standard procedures (Protocol To Determine The Acute Lethality Of Liquid Effluents To Fish, Env. Ont. July 1983 and *Daphnia magna* Acute Lethality Toxicity Test Protocol, Env. Ont. April 1988). In these tests, the organisms are exposed to undiluted effluent and several effluent dilutions for a fixed period. The trout toxicity test is a 96 hour exposure, and a *Daphnia* toxicity test is a 48 hour exposure. The number of organisms that died is the toxic effect that is recorded. The quantitative measure of toxicity is the median lethal concentration (LC50) which is the concentration of effluent estimated to cause mortality to 50% of the test organisms.

All plants except sand and gravel quarries were required to sample for toxicity once in August and once in November. If one trout test had significant mortalities in any concentration, they were required to test monthly for the rest of the year. Sand and Gravel and Quarries were required to test once sometime between August and November. If significant mortalities occurred, they were required to test three additional tests.

The monitoring occurred at 58 sampling locations at 46 sites. For 3 sites, samples were consistently lethal to one or both of the test animals. For 8 sites, samples were sometimes lethal to one or both animals. From the remaining 35 sites, samples were normally non-lethal to both animals. For the period of February, 1990 to October, 1991, the Ministry reviewed the results for 177 trout and 177 *Daphnia* tests. For trout: 133 samples were nonlethal, 26 samples had LC50s > 100% effluent and 18 samples were lethal (LC50 < 100% effluent). For *Daphnia*: 124 samples were nonlethal, 25 samples had LC50s > 100% effluent and 28 samples were lethal (LC50 < 100% effluent).

Toxicity tests from the following sites was not submitted as required by the regulation. Samples from Reiss Lime were lethal and the company should have sampled monthly. Beachvilime, West Plant failed to submit one trout sample. St. Lawrence Cement, Mississauga failed to submit one trout test. Timminco Metals failed to submit one trout and one *Daphnia* test result. Unimin had significant trout mortalities and should have submitted monthly test results.

The Ministry of the Environment's Aquatic Toxicity Unit performed 87 audit tests over the monitoring period, and found that the results of audits were generally consistent with the results submitted by industry. The differences that were observed between the results can be explained primarily by variability in effluent quality; the audits were not tests of split samples.

A preliminary interpretation of the toxicity results, concerning the possible causes of acute lethality, is given below. The Toxicity Test Reports for the samples, reports summarizing the analytical chemistry data for each process effluent, as well as plots from the electronic database were used for this purpose.

Salt Mines

One of the two Samples from the Godrich Mine at Sifto Salt Division, Domtar, Inc., Godrich was acutely lethal to trout and the second sample was lethal to *Daphnia*. Samples from Manhole 3A were lethal to *Daphnia* but not to trout. Both samples from the Ojibway Mine at the Canadian Salt Company Ltd. site in Windsor were very toxic to both animals. One of the five samples from the E1 Main Sewer was toxic to *Daphnia*. In the above sampling locations, the most probable causes are the high level of suspended solids and salts. Neither trout nor *Daphnia* are particularly sensitive to salt concentrations but the levels are even higher than they can tolerate. Ammonia levels may also contribute in the salt mine effluents.

Graphite, gypsum, nepheline syenite, basalt, calcium, talc category

One of the six samples from the effluent from CGC Hagersville Gypsum Mine, Hagersville was toxic to trout for unknown causes. None of the samples were toxic to *Daphnia* from this site. One of two samples from Unimin Canada Ltd. was lethal to both trout and *Daphnia*. Values of pH sometimes exceed 11 in the wash water effluent. The rest of the dischargers in this category had non-lethal samples.

Cement Plants

Three of 13 samples from Essroc Canada Cement, Picton were acutely lethal to both trout

and *Daphnia*. The most probable cause is high pH which reaches as high as 12 in this effluent. Also involved in the toxicity may by high levels of suspended solids. Similarly, six of twelve samples from St. Mary's Cement in Bowmanville were lethal to *Daphnia* but not to trout. Suspended solids are suspected for these since *Daphnia* tend to be more susceptible to them than trout.

Lime Plants

Both samples from Reiss Lime Co. were acutely lethal to both trout and *Daphnia*. The probable cause is high pH which often exceeds 10 in this discharge. Six of twelve samples from Beachvilime Ltd., East Plant, Beachville effluent were toxic to trout and to *Daphnia*. The probable cause is high pH which sometimes exceeds 11 at this site.

Quarries and Clay and Shale categories

The samples from both the quarries category and from the clay and shale category were not acutely lethal to either test animal.

Other considerations

The toxicity tests will detect harmful concentrations and mixtures of most chemical constituents of effluents. But compliance with end-of-pipe limits for acute toxicity would not necessarily control the potential effects of environmental contamination that can be caused by the loading of bioaccumulative substances. These substances are generally nonpolar organic chemicals of high molecular weight and low water solubility or metals such as mercury which accumulate in its organic forms or cadmium which can cause permanent damage at sublethal levels accumulating over the life span of aquatic animals.

The body of this report, presents the summaries of the acute lethality data, grouped by company. These summary pages are part of the complete database, that includes the Toxicity Test Report submitted by industry for each test sample. The details from the database are available from the Water Resources Branch, upon request. The comment fields on individual Toxicity Test Reports were entered by the industry's laboratory performing the tests, and should not be expected to be consistent across samples and do not necessarily represent the views of the Ministry.

COMPANY: 3M Canada Inc., Havelock
(1970201)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Quarry Water Effluent

01910083 sampled: 04/24/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

03910400 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Wash Water Effluent

COMPANY: 3M Canada Inc., Havelock
(1970201)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Three were non-lethal.

Quarry Water Effluent

02910083 sampled: 04/24/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

03910400 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

Wash Water Effluent

COMPANY: Allan G. Cook Limited - Waubaushene, Coldwater (68420108)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901617 sampled: 10/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910323 sampled: 05/28/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MOE Audit; Effluent Hardness = 250 mg/l

COMPANY: Allan G. Cook Limited - Waubaushene, Coldwater (68420108)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901618 sampled: 10/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910323 sampled: 05/28/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 250 mg/L; MOE Audit

COMPANY: Amherst Quarries (1969) Limited, Amherstburg (67360008)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Quarry Water Effluent

06901693 sampled: 10/15/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

01910089 sampled: 05/13/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

COMPANY: Amherst Quarries (1969) Limited, Amherstburg (67360008)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Quarry Water Effluent

06901694 sampled: 10/15/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

02910089 sampled: 05/13/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

COMPANY: Beachvilime Limited - East Plant, Beachville (59540005)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Twelve samples were collected from the Lime Plant Effluent East and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Six were non-lethal. One sample had an LC50 of >100% effluent. LC50 values were 80.6, 80.6, 80.6, 63.3, 80.6% effluent.

Lime Plant Effluent East

03900661 sampled: 08/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900968 sampled: 11/08/90 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03901079 sampled: 12/19/90 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03910042 sampled: 01/22/91 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03910133 sampled: 02/21/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910139 sampled: 02/26/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 1380 mg/L; MOE Audit

03910194 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910250 sampled: 04/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910295 sampled: 05/21/91 LC50: 63.3 %
95% fid. limits: 51.3 - 77.0 % slope: 8.1
comments:

03910373 sampled: 06/18/91 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03910425 sampled: 07/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: Beachvilime Limited - East Plant, Beachville (59540005)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Eleven samples were collected from the Lime Plant Effluent East and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Six were non-lethal. One sample had an LC50 of >100% effluent. LC50 values were 70.7, 70.7, 70.7, 58.2% effluent.

Lime Plant Effluent East

03900661 sampled: 08/08/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900968 sampled: 11/08/90 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03910042 sampled: 01/22/91 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03910133 sampled: 02/21/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910139 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 1380 mg/L; MOE Audit

03910194 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910250 sampled: 04/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910295 sampled: 05/21/91 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03910373 sampled: 06/18/91 LC50: 58.2 %
95% fid. limits: 33.3 - 230.5 % slope: 1.7
comments:

03910425 sampled: 07/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: Beachvilime Limited - West Plant, Beachville (59540104)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Lime Plant Effluent West and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Lime Plant Effluent West

03900967 sampled: 11/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910138 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 400 mg/L; MOE Audit

COMPANY: Beachvilime Limited - West Plant, Beachville (59540104)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Four samples were collected from the Lime Plant Effluent West and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Four were non-lethal.

Lime Plant Effluent West

03900660 sampled: 08/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900967 sampled: 11/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910138 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 400 mg/L; MOE Audit

COMPANY: Beachvilime Ltd.-Guelph Dolime Ltd., Guelph (49560006)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Three samples were collected from the Lime Plant Effluent North and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Two samples were collected from the Lime Plant Effluent South and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Lime Plant Effluent North

03900664 sampled: 08/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900969 sampled: 11/08/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910140 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 500 mg/L; MOE Audit

Lime Plant Effluent South

03900665 sampled: 08/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900970 sampled: 11/08/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

COMPANY: Beachvilime Ltd.-Guelph Dolime Ltd., Guelph (49560006)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Three samples were collected from the Lime Plant Effluent North and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Two samples were collected from the Lime Plant Effluent South and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Lime Plant Effluent North

03900664 sampled: 08/09/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900969 sampled: 11/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910140 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 500 mg/L; MOE Audit

Lime Plant Effluent South

03900665 sampled: 08/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900970 sampled: 11/08/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: Boyce Quarry (Warren Paving Group), Gloucester (129540001)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901677 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: Boyce Quarry (Warren Paving Group), Gloucester (129540001)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901678 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: CGC Inc. - Hagersville Gypsum Mine, Hagersville (4700100)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Six samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Four were non-lethal. One sample had an LC50 of >100% effluent. One had an LC50 value of 56.8% effluent.

Three samples were collected from the Gypsum Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Minewater Effluent

03900751 sampled: 08/30/90 LC50: 56.8 %
95% fid. limits: 47.6 - 67.7 % slope: 8.4
comments:

03900825 sampled: 09/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900933 sampled: 10/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900981 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03901054 sampled: 12/04/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910001 sampled: 01/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Gypsum Plant Effluent

03900752 sampled: 08/30/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900982 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910182 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 1645 mg/L; MOE Audit

COMPANY: CGC Inc. - Hagersville Gypsum Mine, Hagersville (4700100)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Seven samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Six were non-lethal. One sample had an LC50 of >100% effluent.

Three samples were collected from the Gypsum Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Three were non-lethal.

Minewater Effluent

03900751 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900825 sampled: 09/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900933 sampled: 10/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900981 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901054 sampled: 12/04/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910001 sampled: 01/04/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910091 sampled: 02/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Gypsum Plant Effluent

03900752 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900982 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910182 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 1645 mg/L; MOE Audit

COMPANY: Cal Graphite Corp.-Graphite Mine, Kearney (129660007)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Three samples were collected from the Graphite Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Graphite Plant Effluent

03910086 sampled: 01/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

01910049 sampled: 03/11/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

03910437 sampled: 07/30/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 > 100

COMPANY: Cal Graphite Corp.-Graphite Mine, Kearney (129660007)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Three samples were collected from the Graphite Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Graphite Plant Effluent

03910086 sampled: 01/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

02910049 sampled: 03/11/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

03910437 sampled: 07/30/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: non-lethal

COMPANY: Canada Brick Comp. Ltd. Burlington, Burlington (4360400)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Storm Water Effluent

03900727 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900964 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

01910113 sampled: 05/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

COMPANY: Canada Brick Comp. Ltd. Burlington, Burlington (4360400)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Three were non-lethal.

Storm Water Effluent

03900727 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900964 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

02910113 sampled: 05/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

COMPANY: Canada Brick Comp. Ltd. Cooksville, Cooksville (4360509)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent 1 and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. Two had LC50s of >100 % effluent.

Two samples were collected from the Storm Water Effluent two and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two had LC50s of >100 % effluent.

Storm Water Effluent 1

03900881 sampled: 10/02/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900887 sampled: 10/05/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910216 sampled: 04/03/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness =505 mg/L; MOE Audit

Storm Water Effluent 2

03900888 sampled: 10/04/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900892 sampled: 10/09/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

COMPANY: Canada Brick Comp. Ltd. Cooksville, Cooksville (4360509)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY

Three samples were collected from the Storm Water Effluent 1 and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Two samples were collected from the Storm Water Effluent 2 and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Storm Water Effluent 1

03900881 sampled: 10/02/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900887 sampled: 10/05/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910216 sampled: 04/03/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 505 mg/l; MISA Audit

Storm Water Effluent 2

03900888 sampled: 10/04/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900892 sampled: 10/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: Canada Brick Comp. Ltd., Gloucester, Gloucester (4360301)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Storm Water Effluent

03900841 sampled: 09/24/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900985 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910315 sampled: 05/22/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MOE Audit; Effluent Hardness = 75 mg/l

COMPANY: Canada Brick Comp. Ltd., Gloucester, Gloucester (4360301)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Storm Water Effluent

03900841 sampled: 09/24/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900985 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910315 sampled: 05/22/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 75 mg/L; MOE Audit

COMPANY: Canada Brick Comp.Ltd.,Streetsville, Streetsville (4360202)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Storm Water Effluent

03900726 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900965 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910217 sampled: 04/03/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 190 mg/L; MOE Audit

COMPANY: Canada Brick Comp.Ltd.,Streetsville, Streetsville (4360202)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Storm Water Effluent

03900726 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900965 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910217 sampled: 04/03/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 190 mg/l; MISA Audit

COMPANY: Canada Talc Limited-Henderson Mine, Madoc (101060002)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Minewater Effluent

16900021 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO LC50 DUE TO >50% SURVIVAL AT 100% CONC.

16900040 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100%

01910125 sampled: 06/18/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

COMPANY: Canada Talc Limited-Henderson Mine, Madoc (101060002)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Three were non-lethal.

Minewater Effluent

16900016 sampled: 08/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO LC50 DUE TO >50% SURVIVAL AT 100% CONC.

16900031 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100%

02910125 sampled: 06/18/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Reference test

COMPANY: Carden Quarry, Carden Twp. (54690102)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901661 sampled: 10/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910277 sampled: 05/08/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness 620 mg/l; MOE Audit

COMPANY: Carden Quarry, Carden Twp. (54690102)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901662 sampled: 10/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910277 sampled: 05/08/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 620 mg/L; MOE Audit

COMPANY: Cornwall Gravel Comp. Ltd.-McLeod, Cornwall (54820303)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901768 sampled: 10/25/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: Cornwall Gravel Comp. Ltd.-McLeod, Cornwall (54820303)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901769 sampled: 10/25/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: Cruickshank Const. Ltd., Eglinburg, Kingston (96510102)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901772 sampled: 10/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: Cruickshank Const. Ltd., Eglinburg, Kingston (96510102)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901773 sampled: 10/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: Domtar Inc. - Caledonia Gypsum Mine, Caledonia (142604)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY

Two samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Two samples were collected from the Gypsum Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Three samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Minewater Effluent

03900748 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900956 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Gypsum Plant Effluent

03900749 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900957 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Minewater Effluent

03900750 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900958 sampled: 11/06/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

Domtar Inc. - Caledonia Gypsum Mine (continued)

03910183 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 430 mg/L; MOE Audit

COMPANY: Domtar Inc. - Caledonia Gypsum Mine, Caledonia (142604)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One sample had an LC50 of >100% effluent. One had an LC50 value of 96.4% effluent.

Two samples were collected from the Gypsum Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Three samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Minewater Effluent

03900748 sampled: 08/30/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900956 sampled: 11/06/90 LC50: 96.4 %
95% fid. limits: 63.9 - 145.4 % slope: 2.7
comments:

Gypsum Plant Effluent

03900749 sampled: 08/30/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900957 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Minewater Effluent

03900750 sampled: 08/30/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900958 sampled: 11/06/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910183 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 430 mg/L; MOE Audit

COMPANY: ESSROC Canada Cement Inc., Picton (41860008)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Thirteen samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Eight were non-lethal. Two had LC50s of >100 % effluent. LC50 values were 80.6, 80.6, 80.6% effluent.

Cement Plant Effluent

03900737 sampled: 08/28/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901004 sampled: 11/20/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910142 sampled: 02/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 150 mg/L; MOE Audit

Quarry Water Effluent

03900755 sampled: 08/30/90 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03900847 sampled: 09/24/90 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03900905 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non Lethal

03901031 sampled: 11/27/90 LC50: 80.6 %
95% fid. limits: 65.0 - 100.0 %
comments:

03901068 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

ESSROC Canada Cement Inc. (continued)

03910010 sampled: 01/08/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910127 sampled: 02/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910141 sampled: 02/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 270 mg/L; MOE Audit

03910177 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910243 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910275 sampled: 05/07/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910343 sampled: 06/04/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910398 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: ESSROC Canada Inc., Picton
(41860008)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Twelve samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Nine were non-lethal. One sample had an LC50 of >100% effluent. LC50 values were 70.7, 70.7% effluent.

Cement Plant Effluent

03900737 sampled: 08/28/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901004 sampled: 11/20/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910142 sampled: 02/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness =150 mg/L; MOE Audit

Quarry Water Effluent

03900755 sampled: 08/30/90 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03900847 sampled: 09/24/90 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03900905 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non Lethal

03901031 sampled: 11/27/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

ESSROC Canada Inc. (continued)

03901068 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910010 sampled: 01/08/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910127 sampled: 02/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910141 sampled: 02/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 270 mg/L; MOE Audit

03910177 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910275 sampled: 05/07/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910343 sampled: 06/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910398 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

COMPANY: Flamboro Quarries Ltd.-Flamborough, Flamborough (129650008)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Wash Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Wash Water Effluent

06901689 sampled: 10/17/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910199 sampled: 03/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 330 mg/L; MOE Audit

COMPANY: Flamboro Quarries Ltd.-Flamborough, Flamborough (129650008)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Wash Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Wash Water Effluent

06901690 sampled: 10/17/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910199 sampled: 03/25/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 330 mg/L; MOE Audit

COMPANY: Hard Rock Paving Co. Ltd., R.E. Law, Port Colborne (9430307)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901605 sampled: 10/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

06901717 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: Hard Rock Paving Co. Ltd., R.E. Law, Port Colborne (9430307)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901606 sampled: 10/09/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

06901718 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: Kam Aggregates Ltd.,Kam Sand&Gravel, Kaministiqua (29480001)
SECTOR: Industrial Minerals
REGION: Northwest

SUMMARY
Two samples were collected from the Washwater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Washwater Effluent

03910364 sampled: 06/11/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: non-lethal

03910403 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 90 mg/L; MOE Audit

COMPANY: Kam Aggregates Ltd.,Kam Sand&Gravel, Kaministiqua (29480001)
SECTOR: Industrial Minerals
REGION: Northwest

SUMMARY
Two samples were collected from the Washwater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Washwater Effluent

03910364 sampled: 06/11/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 100 mg/L; non-lethal

03910403 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 90 mg/L; MOE Audit

COMPANY: Lafarge Canada Inc. - Bath Cement, Bath (21390109)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Eleven samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Eight were non-lethal. Two had LC50s of >100 % effluent. LC50 values ranged from 65.00000 to 100.00000 % effluent.

Cement Plant Effluent

03900736 sampled: 08/27/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901002 sampled: 11/20/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910278 sampled: 05/08/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness 120 mg/l; MOE Audit

Quarry Water Effluent

03900735 sampled: 08/27/90 LC50: 65.0 - 100.0 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 Range

03900843 sampled: 09/25/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900904 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non Lethal

03901003 sampled: 11/20/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03901066 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910050 sampled: 01/22/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910126 sampled: 02/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910176 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910279 sampled: 05/08/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness 795 mg/l; MOE Audit

03910282 sampled: 05/14/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910397 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Storm Water Effluent

COMPANY: Lafarge Canada Inc. - Bath Cement, Bath (21390109)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Thirteen samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. 11 were non-lethal. Two had LC50s of >100 % effluent.

Cement Plant Effluent

03900736 sampled: 08/27/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901002 sampled: 11/20/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910278 sampled: 05/08/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 120 mg/L; MOE Audit

Quarry Water Effluent

03900735 sampled: 08/27/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900843 sampled: 09/25/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900904 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non Lethal

03901003 sampled: 11/20/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901066 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910050 sampled: 01/22/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910126 sampled: 02/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910176 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910244 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910279 sampled: 05/08/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 795 mg/L; MOE Audit

03910282 sampled: 05/14/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910344 sampled: 06/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910397 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Storm Water Effluent

COMPANY: Lafarge Canada Inc. Plant 4, Woodstock (21390000)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Cement Plant Effluent

03900743 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901015 sampled: 11/22/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

01910084 sampled: 05/07/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

Quarry Water Effluent

03900742 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901014 sampled: 11/22/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

COMPANY: Lafarge Canada Inc. Plant 4, Woodstock (21390000)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Cement Plant Effluent

03900743 sampled: 08/29/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03901015 sampled: 11/22/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

02910084 sampled: 05/07/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

Quarry Water Effluent

03900742 sampled: 08/29/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03901014 sampled: 11/22/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: Lafarge Canada Inc., N&S Quarries, Gloucester (21392006)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901721 sampled: 10/22/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: Lafarge Canada Inc., N&S Quarries, Gloucester (21392006)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901722 sampled: 10/22/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: Luzenac Inc. - Penhorwood Mine Site, Timmins (96920004)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Three samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Minewater Effluent

16900023 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO LC-50 DUE TO >50% SURVIVAL AT 100% CONC.

16900042 sampled: 11/14/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50 > 100%

01910045 sampled: 03/05/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

Quarry Water Effluent

16900024 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO LC-50 DUE TO >50% SURVIVAL AT 100% CONC.

16900041 sampled: 11/14/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50 >100%

Rain Gauge

COMPANY: Luzenac Inc. - Penhorwood Mine Site, Timmins (96920004)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Two samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Minewater Effluent

16900033 sampled: 11/14/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50 > 100%

02910045 sampled: 03/05/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

Quarry Water Effluent

16900032 sampled: 11/14/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50 > 100%

Rain Gauge

COMPANY: Milton Limestone Div. LAC Minerals, Milton (49550007)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Quarry Water Effluent

06901675 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910180 sampled: 03/20/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 320 mg/L; MOE Audit

COMPANY: Milton Limestone Div. LAC Minerals, Milton (49550007)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901676 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910180 sampled: 03/20/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 320 mg/L; MOE Audit

COMPANY: Nelson Aggregate Co., Nelson Quarry, Burlington (47640107)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Storm Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Quarry Water Effluent

06901709 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

Washwater Effluent

06901711 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910136 sampled: 02/27/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 560 mg/L; MOE Audit

COMPANY: Nelson Aggregate Co., Nelson Quarry, Burlington (47640107)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Two samples were collected from the Washwater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901710 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

Washwater Effluent

06901712 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910136 sampled: 02/27/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 560 mg/L; MOE Audit

COMPANY: Nelson Aggregate Co.,Uhthoff Quarry, Uhthoff (47640206)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901691 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910225 sampled: 04/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 250 mg/l; MOE Audit

COMPANY: Nelson Aggregate Co.,Uhthoff Quarry, Uhthoff (47640206)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901692 sampled: 10/16/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910225 sampled: 04/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 250 mg/L; MOE Audit

COMPANY: R.W.Tomlinson Holdings Inc., Nepean (2760106)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901719 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

COMPANY: R.W.Tomlinson Holdings Inc., Nepean (2760106)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
One sample was collected from Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal.

Quarry Water Effluent

06901720 sampled: 10/18/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

COMPANY: Reiss Lime Company Of Can. Limited, Spragge (80910003)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Two samples were collected from the Lime Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. LC50 values were 51.0, 80.6% effluent.

Lime Plant Effluent

06901233 sampled: 08/22/90 LC50: 35.3 %
95% fid. limits: 31.4 - 39.6 %
comments: 100% MORTALITY IN 50% TEST CONCENTRATION.

06901370 sampled: 09/07/90 LC50: 37.0 %
95% fid. limits: 33.9 - 40.3 %
comments: 100% MORTALITY IN 50% TEST CONCENTRATION.

06901995 sampled: 11/28/90 LC50: 80.3 %
95% fid. limits: 78.6 - 81.8 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910230 sampled: 04/08/91 LC50: 51.0 %
95% fid. limits: 40.0 - 65.0 %
comments: Effluent Hardness = 520 mg/l; M.O.E. Audit

COMPANY: Reiss Lime Company Of Can. Limited, Spragge (80910003)
SECTOR: Industrial Minerals
REGION: Northeast

SUMMARY
Two samples were collected from the Lime Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. LC50 values were 39.3, 70.7% effluent.

Lime Plant Effluent

06901234 sampled: 08/22/90 LC50: 38.7 %
95% fid. limits: 30.0 - 50.0 %
comments: 100% MORTALITY IN 50% TEST CONCENTRATION.

06901371 sampled: 09/07/90 LC50: 57.0 %
95% fid. limits: 50.0 - 65.0 %
comments: 100% MORTALITY IN 65% TEST CONCENTRATION.

06901996 sampled: 11/28/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910230 sampled: 04/08/91 LC50: 39.3 %
95% fid. limits: 29.9 - 51.4 % slope: 5.8
comments: Effluent Hardness = 520 mg/l; MOE Audit

COMPANY: Ridgemount Quarries Ltd., Fort Erie (54820204)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901620 sampled: 10/10/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

01910080 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

COMPANY: Ridgemount Quarries Ltd., Fort Erie (54820204)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901621 sampled: 10/10/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

02910080 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

COMPANY: SIFTO Salt Division - Domtar Inc., Goderich (140707)
(formerly Domtar Inc.)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Six samples were collected from the Manhole 3A and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Six were non-lethal.

Two samples were collected from the Minewater Goderich Mine and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. One had an LC50 value of 34.6% effluent.

Manhole 3A

08901123 sampled: 09/19/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

08910131 sampled: 01/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

01910020 sampled: 01/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

08910281 sampled: 02/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: cond. 100%,0hr=12290 - 100%,96hr=12340

Minewater Goderich Mine

08901121 sampled: 09/19/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: cond. for 100%,0hr=11670 - 100%,96hr=11630

Rain Gauge

COMPANY: SIFTO Salt Division - Domtar Inc., Goderich (140707)
(formerly Domtar Inc.)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Four samples were collected from the Manhole 3A and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. LC50 values ranged from 60.00000 to 100.00000 % effluent.

One sample was collected from Minewater Goderich Mine and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One ad an LC50 value of 70.2% effluent.

Manhole 3A

08910132 sampled: 01/16/91 LC50: 56.0 %
95% fid. limits: 45.5 - ***.* %
comments:

02910019 sampled: 01/23/91 LC50: 60.0 - 100.0 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Very high conductivity

08910282 sampled: 02/04/91 LC50: 53.7 %
95% fid. limits: 38.0 - 85.5 % slope: 2.9
comments:

Minewater Goderich Mine

08901122 sampled: 09/19/90 LC50: 70.2 %
95% fid. limits: 68.1 - 72.3 %
comments:

Rain Gauge

COMPANY: St. Lawrence Cement Inc. - Miss., Mississauga (43220003)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Cement Plant Effluent

03901017 sampled: 11/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910198 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 140 mg/L; MOE Audit

COMPANY: St. Lawrence Cement Inc. - Miss., Mississauga (43220003)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Cement Plant Effluent

03901017 sampled: 11/23/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910198 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 140 mg/L; MOE Audit

COMPANY: St. Lawrence Cement Inc., Dufferin, Milton (43221407)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901622 sampled: 10/10/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR SUBLETHAL IMPAIRMENT OBSERVED

03910179 sampled: 03/20/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 420 mg/L; MOE Audit

COMPANY: St. Lawrence Cement Inc., Dufferin, Milton (43221407)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Quarry Water Effluent

06901623 sampled: 10/10/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: NO MORTALITY OR IMMOBILITY OBSERVED IN 48 HRS

03910179 sampled: 03/20/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 420 mg/L; MOE Audit

COMPANY: St. Marys Cement Corp., Bowmanville, Bowmanville (34640003)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Twelve samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Nine were non-lethal. Two had LC50s of >100 % effluent. LC50 values ranged from 65.00000 to 100.00000 % effluent.

Cement Plant Effluent

03900757 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901011 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

Quarry Water Effluent

03900754 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901010 sampled: 11/21/90 LC50: 65.0 - 100.0 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 Range 65.00 - 100.00

03901067 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910087 sampled: 01/31/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03910144 sampled: 02/28/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910196 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

St. Marys Cement Corp., Bowmanville (continued)

03910219 sampled: 04/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 2275 mg/l; M.O.E. Audit

03910242 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03910274 sampled: 05/07/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments:

03910342 sampled: 06/04/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910399 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

01910157 sampled: 07/31/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit; Non-lethal

COMPANY: St. Marys Cement Corp., Bowmanville, Bowmanville (34640003)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Two samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Twelve samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Five were non-lethal. One sample had an LC50 of >100% effluent. LC50 values were 30.2, 39.3, 45.1, 70.7, 70.7, 39.7% effluent.

Cement Plant Effluent

03900757 sampled: 08/30/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03901011 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Quarry Water Effluent

03900754 sampled: 08/30/90 LC50: 30.2 %
95% fid. limits: 22.8 - 39.8 % slope: 3.9
comments:

03901010 sampled: 11/21/90 LC50: 39.3 %
95% fid. limits: 29.9 - 51.4 % slope: 5.8
comments:

03901067 sampled: 12/11/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910087 sampled: 01/31/91 LC50: 45.1 %
95% fid. limits: 35.9 - 56.6 % slope: 5.8
comments:

03910144 sampled: 02/28/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910196 sampled: 03/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

St. Marys Cement Corp., Bowmanville (continued)

03910219 sampled: 04/04/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 2275 mg/L; MOE Audit

03910242 sampled: 04/16/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910274 sampled: 05/07/91 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03910342 sampled: 06/04/91 LC50: 70.7 %
95% fid. limits: 50.0 - 100.0 %
comments:

03910399 sampled: 07/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

02910157 sampled: 07/31/91 LC50: 39.7 %
95% fid. limits: 34.8 - 45.2 %
comments: MISA Audit

COMPANY: St. Marys Cement Corp., St. Marys, St. Marys (34640102)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY

Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Cement Plant Effluent

03900745 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03901012 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910218 sampled: 04/03/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA audit sample.

Quarry Water Effluent

03900744 sampled: 08/29/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

03901013 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Quarry Water Effluent

Storm Water Effluent

Storm Water Effluent

COMPANY: St. Marys Cement Corp., St. Marys, St. Marys (34640102)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Cement Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. LC50 values ranged from 13.00000 to 25.00000 % effluent.

Two samples were collected from the Quarry Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Cement Plant Effluent

03900745 sampled: 08/29/90 LC50: 13.0 - 25.0 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 Range

03901012 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910218 sampled: 04/03/91 LC50: 60.3 %
95% fid. limits: 47.5 - 76.5 % slope: 5.4
comments: MISA audit sample.

Quarry Water Effluent

03900744 sampled: 08/29/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03901013 sampled: 11/21/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

Quarry Water Effluent

Storm Water Effluent

COMPANY: Steetley Quarry Products, Dundas (1070002)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Lime Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Lime Plant Effluent

03910226 sampled: 04/09/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 600 mg/l; MOE Audit

03910325 sampled: 05/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MOE Audit; Effluent Hardness = 320 mg/l

COMPANY: Steetley Quarry Products, Dundas (1070002)
SECTOR: Industrial Minerals
REGION: West Central

SUMMARY
Two samples were collected from the Lime Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. One was non-lethal. One sample had an LC50 of >100% effluent.

Lime Plant Effluent

03910226 sampled: 04/09/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 600 mg/L; MOE Audit

03910325 sampled: 05/29/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 320 mg/L; MOE Audit

COMPANY: Stelco Inc. - Chemical Lime Works, Ingersoll (951608)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Lime Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Lime Plant Effluent

03900699 sampled: 08/15/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910137 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 480 mg/L; MOE Audit

03910245 sampled: 04/17/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

COMPANY: Stelco Inc. - Chemical Lime Works, Ingersoll (951608)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Lime Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Three were non-lethal.

Lime Plant Effluent

03900699 sampled: 08/15/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03910137 sampled: 02/26/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 480 mg/L; MOE Audit

03910245 sampled: 04/17/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

COMPANY: The Canadian Salt Company Ltd., Windsor
(1040005)
(formerly The Canadian Salt Company Ltd.)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY

E1-Main Sewer

03900361 sampled: 05/07/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non-lethal

03900617 sampled: 07/23/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900947 sampled: 11/05/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

01910003 sampled: 01/07/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

03910067 sampled: 01/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

E6-Condensate Overflow

Minewater (Ojibway Mine)

03900362 sampled: 05/07/90 LC50: 15.1 %
95% fid. limits: 10.6 - 21.4 % slope: 3.5
comments:

03900948 sampled: 11/05/90 LC50: 10.0 %
95% fid. limits: 7.7 - 12.8 % slope: 5.5
comments:

Rain Gauge

COMPANY: The Canadian Salt Company Ltd., Windsor (1040005)
(formerly The Canadian Salt Company Ltd.)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Five samples were collected from the E1-Main Sewer and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. Two had LC50s of >100 % effluent. One had an LC50 value of 61.4% effluent.

Two samples were collected from the Minewater (Ojibway Mine) and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. LC50 values were 7.8, 3.3% effluent. Two samples were collected from the dust collector effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. LC50 values were 8.8, 18.0% effluent.

E1-Main Sewer

03900361 sampled: 05/07/90 LC50: 61.4 %
95% fid. limits: 48.0 - 78.5 % slope: 5.8
comments:

03900617 sampled: 07/23/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: LC50 >100

03900947 sampled: 11/05/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

02910003 sampled: 01/07/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments: MISA Audit

03910067 sampled: 01/23/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Non lethal

E6-Condensate Overflow

Minewater (Ojibway Mine)

03900362 sampled: 05/07/90 LC50: 7.8 %
95% fid. limits: 4.7 - 12.7 % slope: 3.2
comments:

03900948 sampled: 11/05/90 LC50: 3.3 %
95% fid. limits: 2.6 - 4.1 % slope: 5.8
comments:

Rain Gauge

dust collector effluent

03900949 sampled: 11/05/90 LC50: 8.8 %
95% fid. limits: 6.0 - 13.0 %
comments:

03910068 sampled: 01/23/91 LC50: 18.0 %
95% fid. limits: 13.0 - 25.0 %
comments:

intake water

COMPANY: Timminco Limited - Haley Station, Haley Station (100740109)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Two samples were collected from the Magnesium Plant Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Two were non-lethal.

Magnesium Plant Effluent

16910048 sampled: 01/15/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50>100%

03910181 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 280 mg/L; MOE Audit

Storm Water Effluent

COMPANY: Timminco Limited - Haley Station, Haley Station (100740109)
SECTOR: Industrial Minerals
REGION: Southeast

SUMMARY
Two samples were collected from the Magnesium Plant Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal.

Magnesium Plant Effluent

16910037 sampled: 01/15/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: LC-50>100%

03910181 sampled: 03/19/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 280 mg/L; MOE Audit

Storm Water Effluent

COMPANY: UNIMIN Canada Ltd., Nephton
(129560009)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Four samples were collected from the Wash Water Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. One was non-lethal. Two had LC50s of >100 % effluent. One had an LC50 value of 59.0% effluent.

Wash Water Effluent

09902015 sampled: 11/06/90 LC50: 59.0 %
95% fid. limits: 54.4 - 64.0 %
comments:

09910022 sampled: 01/31/91 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments:

03910259 sampled: 05/01/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 50 mg/l; MOE Audit

COMPANY: UNIMIN Canada Ltd., Nephton
(129560009)
SECTOR: Industrial Minerals
REGION: Central

SUMMARY
Three samples were collected from the Wash Water Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One had an LC50 value of 77.5% effluent.

Wash Water Effluent

09902015 sampled: 11/06/90 LC50: 77.5 %
95% fid. limits: 0.0 - 0.0 %
comments:

09912022 sampled: 01/31/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

03910259 sampled: 05/01/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 50 mg/L; MOE Audit

COMPANY: Westroc Industries Limited, Drumbo (116610106)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Minewater Effluent and tested for acute toxicity to rainbow trout using the 96 hr LC50 test. Three were non-lethal.

Minewater Effluent

08900941 sampled: 08/14/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

08901551 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

03910260 sampled: 05/01/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness 2780 mg/l; MOE Audit

COMPANY: Westroc Industries Limited, Drumbo (116610106)
SECTOR: Industrial Minerals
REGION: Southwest

SUMMARY
Three samples were collected from the Minewater Effluent and tested for acute toxicity to Daphnia magna using the 48 hr LC50 test. Two were non-lethal. One sample had an LC50 of >100% effluent.

Minewater Effluent

08900942 sampled: 08/14/90 LC50: >100 %
95% fid. limits: 0.0 - 0.0 %
comments:

08901552 sampled: 11/13/90 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments:

03910260 sampled: 05/01/91 non-lethal
95% fid. limits: 0.0 - 0.0 %
comments: Effluent Hardness = 2780 mg/L; MOE Audit